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09/773,243	01/31/2001	Thomas Henry Tichy	CTS-1999	6147

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EXAMINER
SHAPIRO, LEONID

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/773,243	Applicant(s) TICHY ET AL.	
	Examiner Leonid Shapiro	Art Unit 2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-19 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-19 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show rubber-like cap 25 as described in the specification on page 4 and connection 94 to inverter 90 as described in specification on page 8. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-6, 9, 11, 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seffernick et al. (US Patent No. 5,966,117) in view of Saarmaa et al. (Patent Application No. 2001/0005108 A1) and further in view of Woodart et al. (US Patent No. 6,259,188 B1).

As to claim 1, Seffernick et al. teaches an apparatus for a cursor control device comprising: a cursor control mechanism (See Fig. 3, items 12, 30, in description see Col. 3, Lines 24-34); the substrate coupled to the cursor control mechanism (See Fig. 1, item 14, in description See Col. 4, Lines 41-46).

Seffernick et al. does not teach a piezo-electric material mounted on a semi-rigid substrate.

Saarmaa et al. teaches a tactile feedback (See in Description paragraph 0055) by attaching a piezo-electric material on substrate (See Fig. 3d, items 10, 201, in description See paragraph 0049).

It would have been obvious to one of ordinary skill in the art at the time of the invention to attach piezo-electric material as shown by Saarmaa et al. to the semi-rigid substrate in Seffernick et al. apparatus in order to provide tactile feedback (See in Description of Saarmaa et al. reference paragraph 0055).

Seffernick et al. and Saarmaa et al. do not show a control circuit electrically interconnected to the piezo-electric material for providing a signal to cause the piezo-electric material to vibrate.

Woodart et al. teaches a control circuit electrically interconnected to the piezo-electric material for providing a signal to cause the piezo-electric material to vibrate (See Fig. 1C, items 10, 28, in description see col. 4, lines 42-50).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a control circuit as shown by Woodart et al. in Seffernick et al. and Saarmaa et al. apparatus in order to provide tactile feedback (See in Description of Saarmaa et al. reference paragraph 0055).

As to claim 2, Seffernick et al. teaches the cursor control device providing a z-axis output signal and control circuit sensing the z-axis output signal (See Fig. 4, item 161, in description See Col. 5, Lines 49-55); and Woodart et al. teaches a control signal to cause the piezo-electric material to vibrate in response to the z-axis output signal (See Fig. 1C, items 10, 28, in description see col. 4, lines 42-50).

As to claims 3-6, Seffernick et al. teaches the substrate from of epoxy glass, Fr4, or molded polycarbonate material (See in Description Col. 4, Lines 60-64).

Seffernick et al. does not show the substrate made from semi-rigid material as a thin layer of metal, an alumina, an additional piezo-electric wafer, a ceramic material.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use different materials in Seffernick et al., Saarmaa et al. and Woodart et al. apparatus in order to provide tactile feedback (See in Description of Saarmaa et al. reference paragraph 0055). Such a modification in material usage would have been considered a mere design consideration which fails to patentably distinguish over the prior art of the record.

As to claims 9, Saarmaa et al. teaches the piezo-electric material comprises a plurality of layers of piezo-electric material (See in Description paragraph 0052).

As to claims 11, Woodate et al. teaches the predefined electrical signal is an AC signal (See Fig. 1A, item 32, in description See col. 3, Lines 56-59).

As to claims 14, Woodard et al. teaches an electrical system for generating the predetermined signal to activate the piezo-electric material (See Fig. 1A, item 32, in description See col. 3, Lines 51-59).

As to claims 15, Seffernick et al. teaches the cursor control device is a pointing stick (See Fig. 5, item 10, in description See Col. 2, Lines 14-16).

As to claims 16 Saarmaa et al. teaches a mouse as the cursor control device (See Fig. 6I, in description See paragraph 0055).

As to claim 17, Seffernick et al. teaches a pointing stick for use a cursor control device comprising: a shaft accessible to the user for providing a physical input for cursor control (See

Fig. 3, items 12, 30, in description see Col. 3, Lines 24-34); at least one sensor mounted on the shift for sensing the physical input applied by the user (See Fig. 3, item 30, in description See from Col. 4, Line 64 to Col. 5, Line 7).

Seffernick et al. does not teach a piezo-electric material mounted on a semi-rigid substrate.

Saarmaa et al. teaches a tactile feedback (See in Description paragraph 0055) by attaching a piezo-electric material on substrate (See Fig. 3d, items 10, 201, in description See paragraph 0049).

It would have been obvious to one of ordinary skill in the art at the time of the invention to attach piezo-electric material as shown by Saarmaa et al. to the semi-rigid substrate in Seffernick et al. apparatus in order to provide tactile feedback (See in Description of Saarmaa et al. reference paragraph 0055).

Seffernick et al. and Saarmaa et al. do not show a control circuit electrically interconnected to the piezo-electric material for providing a signal to cause the piezo-electric material to vibrate.

Woodart et al. teaches a control circuit electrically interconnected to the piezo-electric material for providing a signal to cause the piezo-electric material to vibrate (See Fig. 1C, items 10, 28, in description see col. 4, lines 42-50).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a control circuit as shown by Woodart et al. in Seffernick et al. and Saarmaa et al. apparatus in order to provide tactile feedback (See in Description of Saarmaa et al. reference paragraph 0055).

As to claim 18, Seffernick et al. teaches an apparatus for a cursor control device comprising: a cursor–actuated linkage for providing a desired cursor movement (See Fig. 3, items 12, 30, in description see Col. 3, Lines 24-34) and See Fig. 1, item 14, in description See Col. 4, Lines 41-46).

Seffernick et al. does not teach a piezo-electric assembly operable as a source of vibration.

Saarmaa et al. teaches a tactile feedback (See in Description paragraph 0055) by attaching a piezo-electric material on substrate (See Fig. 3d, items 10, 201, in description See paragraph 0049).

It would have been obvious to one of ordinary skill in the art at the time of the invention to attach piezo-electric material as shown by Saarmaa et al. to the semi-rigid substrate in Seffernick et al. apparatus in order to provide tactile feedback (See in Description of Saarmaa et al. reference paragraph 0055).

Seffernick et al. and Saarmaa et al. do not show a control device for sensing a predefined condition and providing an electrical signal to activate the piezo-electric assembly; and wherein the piezo-electric assembly is mechanically coupled to the user-actuated linkage to deliver the vibration to the user.

Woodart et al. teaches a control circuit electrically interconnected to the piezo-electric material for providing a signal to cause the piezo-electric material to vibrate (See Fig. 1C, items 10, 28, in description see col. 4, lines 42-50).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a control circuit as shown by Woodart et al. in Seffernick et al. and Saarmaa et al.

apparatus in order to provide tactile feedback (See in Description of Saarmaa et al. reference paragraph 0055).

As to claim 19, Seffernick et al. teaches an method for a tactile feedback comprising following steps: providing a cursor control device (See Fig. 3, items 12, 30, in description see Col. 3, Lines 24-34); sensing a predetermined condition for which tactile feedback is desired (See Fig. 1, item 14, in description See Col. 4, Lines 41-46).

Seffernick et al. does not teach mounting the material to the cursor control device to provide a mechanical transfer of vibrations from the material to the cursor control device; providing a piezo-electrical assembly that vibrates upon ele3ctrical activation.

Saarmaa et al. teaches a tactile feedback (See in Description paragraph 0055) by attaching a piezo-electric material on substrate (See Fig. 3d, items 10, 201, in description See paragraph 0049).

It would have been obvious to one of ordinary skill in the art at the time of the invention to attach piezo-electric material as shown by Saarmaa et al. to the semi-rigid substrate in Seffernick et al. method in order to provide tactile feedback (See in Description of Saarmaa et al. reference paragraph 0055).

Seffernick et al. and Saarmaa et al. do not show activating the piezo-electric assembly to provide mechanical vibration to the customer.

Woodart et al. teaches a control circuit electrically interconnected to the piezo-electric material for providing a signal to cause the piezo-electric material to vibrate (See Fig. 1C, items 10, 28, in description see col. 4, lines 42-50).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a control circuit as shown by Woodart et al. in Seffernick et al. and Saarmaa et al. method in order to provide tactile feedback (See in Description of Saarmaa et al. reference paragraph 0055).

3. Claims 7-8, 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seffernick et al., Saarmaa et al. and Woodart et al. as aforementioned in claims 1, 4 and 6 in view of Barber et al. (US Patent No. 5,973,6700).

As to claims 7-8, Woodart et al. teaches the control circuit providing the control signal to cause the piezo-electric material to vibrate in response to the indicating signal (See Fig. 1C, items 10, 28, in description see col. 4, lines 42-50).

Seffernick et al., Saarmaa et al. and Woodart et al. do not show an indicating circuit for providing an indicating signal when the cursor is placed over the active area on a display.

Barber teaches an indicating circuit for providing an indicating signal when the cursor is placed over the active area on a display (See Fig. 1, items 32,34, in description See from Col. 3, Line 66 to Col. 4, Line 29).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use an indicating circuit for providing an indicating signal when the cursor is placed over the active area on a display as shown by Barber et al. in Seffernick et al., Saarmaa et al. and Woodart et al. apparatus in order to provide tactile feedback (See in Description of Saarmaa et al. reference paragraph 0055).

As to claim 12, Woodard et al. teaches an AC signal is at least 20 volts peak to peak (See Fig. 1A, item 32, in description See col. 4, Lines 5-18) with a frequency of at least 300 Hz (See Fig. 1A, item 32, in description See col. 3, Lines 52-57).

As to claim 13, Seffernick et al., Saarmaa et al. and Woodart et al. do not show the software determines a condition requiring tactile feedback and provides the electric signal to the piezo-electric material in the cursor control device .

Barber et al. teaches the software determines a condition requiring tactile feedback and provides the electric signal to the piezo-electric material in the cursor control device (See Fig. 1, items 32,34, in description See from Col. 3, Line 66 to Col. 4, Line 29).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the software determines a condition requiring tactile feedback and provides the electric signal to the piezo-electric material in the cursor control device as shown by Barber et al. in Seffernick et al., Saarmaa et al. and Woodart et al. apparatus in order to provide tactile feedback (See in Description of Saarmaa et al. reference paragraph 0055).

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barber et al. in view of Sefferenick et al. and further in view of Saarmaa et al. and further in view of Woodart et al.

Barber et al teaches a computer input system comprising: a computer (See Fig. 1, item 16); a cursor control device electrically controlled to the computer (See fig. 1, item 14); software for determining a cursor position based upon user actuation of the cursor control device display (See Fig. 1, items 32,34, in description See from Col. 3, Line 66 to Col. 4, Line 29).

Barber does not show the cursor control device further comprising: an x, y, z axis sensor system.

Seffernick et al. teaches an x, y, z axis sensor system (See Fig. 3, items 12, 30, in description see Col. 3, Lines 24-34); the substrate coupled to the cursor control mechanism (See Fig. 1, item 14, in description See Col. 4, Lines 41-46).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use an x, y, z axis system as shown by Barber et al. in Seffernick et al. apparatus.

Seffernick et al. and Baker et al. do not show a piezo-electric material mounted on a semi-rigid substrate.

Saarmaa et al. teaches a tactile feedback (See in Description paragraph 0055) by attaching a piezo-electric material on substrate (See Fig. 3d, items 10, 201, in description See paragraph 0049).

It would have been obvious to one of ordinary skill in the art at the time of the invention to attach piezo-electric material as shown by Saarmaa et al. to the semi-rigid substrate in Seffernick et al. and Barber et al. apparatus in order to provide tactile feedback (See in Description of Saarmaa et al. reference paragraph 0055).

Baker et al, Seffernick et al. and Saarmaa et al. do not show a control circuit electrically interconnected to the piezo-electric material for providing a signal to cause the piezo-electric material to vibrate.

Woodart et al. teaches a control circuit electrically interconnected to the piezo-electric material for providing a signal to cause the piezo-electric material to vibrate (See Fig. 1C, items 10, 28, in description see col. 4, lines 42-50).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a control circuit as shown by Woodart et al. in Baker et al. ,Seffernick et al. and Saarmaa et al. apparatus upon activation by a predefined electrical signal in order to provide tactile feedback (See in Description of Saarmaa et al. reference paragraph 0055).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

The Lo et al. (US Patent no. 5,973,441) reference discloses piezoceramic vibrotactile transducer based on pre-compressed arc.

The Bryant et al. (US Patent no. 6.392,329 B1) reference discloses piezoelectric vibrating apparatus.

Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

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August 14, 2003

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